D 37

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FIG.1A

K 2 <u>.</u> 🍱 ы G Ŋ Ŋ ŋ ഗ Ø A A A K K Σ

CCGAGGGGGTCGGCCCGGGGTCCCGGGGGGGGGGGAGATGGTGAAGGGGGCAGCCGTTCG 120

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ACGTGGGCCCGCGCTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGGCATGGTCA 180

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GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCCTTCG 240

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AACATCAGACCTACTGCCAGCGCACGCTCCGGGAGATCCAGATCCTGCTGCGCTTCCGCC 300

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ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG 360

117 Ω 2 Σ K [H] Н E ഗ K 又 Н Н Ω ĸ Н G H > Z 딥

FIG.1B

099 TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG 720 009 197 420 480 540 177 137 157 더 ACACCGGCTTCCTGACGGAGTATGTGGCTACGCGCTGGTACCGGGCCCCCAGAGATCATGC Ø TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGATTGCCGATCCTGAGCATGACC AGCTGAGCAATGACCATATCTGCTACTTCCTCTACCAGATCCTGCGGGGCCTCAAGTACA I ATGICTACATIGIGCAGGACCTGAGGACTGACCTGTACAAGTIGCTGAAAAGCCAGC Σ Ω Ó Ø \succ E Н 工 H 区 ಭ Z ഥ 뙤 H Н ᄀ × Ċ ļ Д Ŋ ш ļ Ы ᅱ Ω U 2 K Ø × Н ĸ > Z S × Н \succ S K 3 Ø 3 Ц Д L A 2 × Ω × H 드 Н H H ¥ Ω G Н لعا 回 > ഗ 2 بعاً × Σ ບ Ω × × 口 工 Ö 回 E Ω Н H H >-> Ø H × Н G > Ω Z × K D L Z Η U S ഗ S H C Z 巫

FIG.1C

AGGAGCTCATCTTCCAGGAGACAGCACGCTTCCAGCCCGGAGTGCTGGAGGCCCCCTAGC 1020 335 R L K 317 TGGAGGAAGCGCTGGCTCACCCCTACCTGGAGCAGTACTATGACCCGACGGATGAGCCAG 900 257 AGATGCTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA 780 Trctggcccttgacctgctggaccggatgttaacctttaaccccaataaacggatcacag 840 Д H H אם Z Н 团 R P I F P G K H Y L D Q L K ĸ × F H × Ы Д 7 · 7 Z T O O T Q Y Y D ىم ග Z Ы ۲ Ø H ᅜ ഥ Ц لتا P Y L × F A M Σ 2 A Ω H H П Ŀ П ¥ Ö 드 A L Ω بعا Z Ы ഗ ᆸ 闰 ы ¥ I E 团 ь

FIG.1D

165	CTAATATATAAATATAGAGATGTGTCTATGGCTG
162	AGCAGAAGTGGAGCTGGGGGGGGTGGAGAGCCCGGCGCCCCTGCCACCTCCCTGACCCGT
156	CGAATCCCCTCTGTCAAAGCTGTCACTTCGCGTGCCCTCGCTGCTTCTGTGTGTG
150	TTCCCTGAAGGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGAGCCAGGCCGGGC
144	SCTGAGTAGGGACTCAGGGCCATGCCTCCCCCCTCATCTCATTCAAACCCCACCCTAGT
138	GGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCCAGAGGTGGAGGGTGGGGGG
132	ATCTCCCGCTGCTGCTGCGCCCTTACCTTCCCCAGCGTCCCAGTCTCTGGCAGTTCT
126	SCTTCTCCTCCCCACCCGCCCTCCCCACGGGGCCTCGGGAGCTCAGGTGGCCCCCAGTTCA
120	3AGCATGGGCCTGGCCACCTCTCTCTTTGCTGAGGCCTCCAGCTTCAGGCAGG
114	CAGACTGTTAGAAAATGGACACTGTGCCCCGGGACCTTGGCAGCCCAGGCCGGGGTG
108	CCAGACAGACATCTCTGCACCCTGGGGCCTGGCCTGCCTG

FIG.2A

360 AACATCAGACCTACTGCCAGCGCACGCTCCGGGAGATCCAGATCCTGCTGCGCTTCCGCC 300 ACGTGGGCCCGCGCTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGGCATGGTCA 180 GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCCTTCG 240 CCGAGGGGGTCGCCCCGGGGGTCCCGGGGGAGGTGGAGATGGTGAAGGGGCCAGCCGTTCG 120 37 57 Ω 团 H ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG ß 2 بيرا بعآ > K Ŀ Д Σ م ~ K Д Ø ŗ ഗ IQILL Ŋ A Y Н 떠 × × ₍ > X ט U . U Σ H ഥ G K U F > FJ Н G > **>**-8 œ Ø ഥ Ø 口 Ø Ċ Н K X H Ы Ø A <u>ر</u> ر × K Ø > A ₽ ပ Ы K Ή × × Ω 5 K Σ > > Ы Ø ¥ ن ပ ഗ 되

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FIG.2B

720 099 009 197 540 420 177 M L 217 137 157 AGCTGAGCAATGACCATATCTGCTACTTCCTCTACCAGATCCTGCGGGGCCTCAAGTACA 480 TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA 더 工 ACACCGGCTTCCTGACGGAGTATGTGGCTACGCGCTGGTACCGGGCCCCAGAGATCATGC CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGATTGCCGATCCTGAGCATGACC Ø ATGTCTACATTGTGCAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGC E Ø Ø Ω × Н 口 ഗ X Z H × Н দ্র Н 团 Н П U Д K L L Ŋ М П 出 A G Ω ĸ A H > Z ≻ × ഗ Н ß IO Ы 2 3 Ы 3 Ω I Y A 2 区 Н Н 口 E Q U A H Ŀ Η > 区 ഗ Ŀı × Σ × ບ × Ω Ц Ξ Ω ĿÌ ပ Н H Ø H > H ٤ \succ × > Ω 口 Ŋ Z H × بعا K Z Ω Ŋ Ŋ ഗ ഗ ပ Z 工

FIG.2C

AGGAGCGGCTGAAGGAGCTCATCTTCCAGGAGACACCACCTTCCAGCCCGGAGTGCTGG 1080 297 357 257 840 AGATGCTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA 780 CCAAGTCAGACTCCAAAGCCCTTGACCTGCTGGACCGGATGTTAACCTTTAACCCCAATA 960 CCCGAAACTACCTACAGTCTCTGCCCTCCAAGACCAAGGTGGCTTGGGCCAAGCTTTTCC 900 Д FJ TTCTGGGCATCCTGGGCTCCCCATCCCAGGAGCACCTGAATTGTATCATCAACATGAAGG ρι × 口 Z 工 لتا TOOT М Н > Z Σ × Ţ, G Z Z K Ŀ Ø Д CI 3 Ω Ø E F A M E H Н K [24 **>**-Σ > Z ĸ × D I H ĸ K H O T T O 又 ٢ × ָט 田 团 Ø Д വ لعا O ഗ а لتا а 1 K A L 团 П Ы H Н ß 떠 ہم ഗ Д Ø G A K 团 Y T > W. Z × ഗ Ŋ ഗ Н K Z Σ H × 1

FIG.2I

1726	TCCCTGACCCGTCTAATATATATAGAGATGTGTCTATGGCTG
1680	CTGTGTGTGTGAGCAGAAGTGGAGCTGGGGGGGGGGTGGAGGCCCGGCGCCCCTGCCACC
1620	GCCAGGCCGGGCCGAATCCCCTCTCTCAAAGCTGTCACTTCGCGTGCCCTCGCTTGCTT
1560	CCCCACCCTAGTTTCCCTGAAGGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGA
1500	AGGGTGGGGGGGCGTGAGTAGGGACTCAGGGCCATGCCTGCC
1440	TCTGGCAGTTCTGGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCAGAGGTGG
1380	GGCCCCAGTTCAATCTCCCGCTGCTGCTGCGCCCTTACCTTCCCCAGCGTCCCAGTC
1320	GGCAGGCCAAGGCCTTCTCCTCCCCACCCGCCCTCCCCACGGGGCCTCGGGAGCTCAGGT
1260	CAGGCCGGGGTGGAGCATGGGCCTGGCCACCTCTCTCTTTGCTGAGGCCTCCAGCTTCA
1200	CCCCTCTCCCGCCAGACTGTAGAAATGGACACTGTGCCCCAGCCCGGACCTTGGCAGCC
359	A P *
1140	AGGCCCCCTAGCCCAGACATCTCTGCACCCTGGGGCCTGGACCTGCCTCCTGCTG 1140

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FIG.3A

360 AACATCAGACCTACTGCCAGGCACGCTCCGGGAGATCCAGATCCTGCTGCGCTTCCGCC 300 ACGTGGGCCCGCGCTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGGCATGGTCA 180 GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCCTTCG 240 CCGAGGGGGTCGGCCCCGGGGGTCCCGGGGGGGGGGGGAGATGGTGAAGGGGGCAGCCGTTCG 120 16 57 ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG Ή 띱 H Ω ഗ 公 ىعا œ а Σ Ŀ 2 Д Ø ŋ K I S Ы Н Ŋ × ഥ × K × Н G H × ပ > G I O Σ [1] Н ტ Ŋ 띱 ග ¥ 团 ග > |--| > Σŏ ø Ø 2 ഥ 口 Ø G Ę T O × ¥ H Щ ¥ ¥ 1 > Ø A G > H ပ A Д × H × Ω ĸ Σ G H × Ы > Ø G G S H

FIG.3B

099 540 197 TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG 720 480 157 009 177 M L 217 ATGTCTACATTGTGCAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGC 420 0 137 ഥ AGCTGAGCAATGACCATATCTGCTACTTCCTCTACCAGATCCTGCGGGGCCTCAAGTACA I ACACCGGCTTCCTGACGGAGTATGTGGCCTACGCGCTGGTACCGGGCCCCCAGAGATCATGC TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGATTGCCGATCCTGAGCATGACC Ø ≻ H Ø Ω S 又 Н H Z ĿЛ × Н Н 딥 Ц TDLYKLL Н ပ ŋ Д Ø Ω Н G 2 K W Y R Z > П S ß Н Н Ø K Д 3 ¥ H 2 × I . Q H 1 Н YVAT ტ Ω [1] Н لعا ĸ ĮŦ1 Σ Ø **>** I O ပ H Ω × ပ 띱 Н Н Ø Н > H 田 \succ × П > Ω C Z لتا × A Z ص ن G ഗ S ß H Z Н

FIG.3C

AACGGATCACAGTGGAGGAAGCGCTGGCTCACCCCTACCTGGAGCAGTACTATGACCCGA 1020 960 900 297 P T 337 K 357 840 277 AGATECTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA 780 257 CCAAGTCAGACTCCAAAGCCCTTGACCTGCTGGACCGGATGTTAACCTTTAACCCCAATA CCCGAAACTACCTACAGTCTCTGCCCTCCAAGACCAAGGTGGCTTGGGCCAAGCTTTTCC TTCTGGGCATCCTGGGCTCCCCATCCCAGGAGGACCTGAATTGTATCATCAACATGAAGG A Ы <u>ب</u>ــاً . 田 又 Ω а K L Н Σ Z Q Y Y Z 口 Z A ഥ Ø CIL Н Ω 3 H H P Y L E R M L 딥 Ц K > Σ Z × × V H Ξ T D ⊏ Ŀ 又 × 더 터 G K A L D L A L A Ø Ŀ Д S Д S Д Ľ A L Q S L 国 Ы Н Ŀ ᄓ S م Œ K ט K ß > > Z Д Ŋ L G 띱 Z Ŋ Σ 又

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FIG.3D

AGGAGCGGCTGAAGGAGCTCATCTTCCAGGAGACAGCACGCTTCCAGCCCGGAGTGCTGG 1140 AGGCCCCCTAGCCCAGACACCTCTCTCTCTGGGGCCTGGAACAGAACTGGCAAAG 1200 379 Ц > G а Ø Ŀı 区 Ø H F Ø لتا Н Н ഥ 公 区 国

GGCGCTGAGTAGGGACTCAGGGCCATGCCCCCCCCTCATCTCATTCAAACCCCACCCT 1620 TCTGGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCCAGAGGTGGAGGGTGGGGG 1560 AGTITCCCTGAAGGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGAGCCAGGCCG 1680 AGGCCTTCTCCTCCCCCCCCCCCCCCCCCCCCCCACGGGCCTCGGGAGCTCAGGTGGCCCCCAGT 1440 TCAATCTCCCGCTGCTGCTGCTGCGCCCTTACCTTCCCCAGCGTCCCAGTCTCTGGCAGT 1500 CGCCAGACTGTTAGAAAATGGACACTGTGCCCAGCCCGGACCTTGGCAGCCCAGGCCGGG 1320

FIG.3E

1837 GGCCGAATCCCCTCTCTCAAAGCTGTCACTTCGCGTGCCCTCGCTGCTTCTGTGTGT 1740 GTGAGCAGAAGTGGAGCTGGGGGGGGGGGCCCGGGCCCCCTGCCACCTCCCTGACC 1800 CGTCTAATATAAATATAGAGATGTGTCTATGGCTG

360

ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG

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FIG.4A

120 GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCCTTCG 240 AACATCAGACCTACTGCCAGCGCACGCTCCGGGAGATCCTAGATCCTGCTGCGCTTCCGCC 300 ACGTGGGCCCCGCGCTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGGCATGGTCA 180 57 76 37 CCGAGGGGGTCGGCCCCGGGGGTCCCCGGGGGAGGTGGAGGGGGGCAGCCGTTCG I 더 ĸ × لعرا > Ŀ Σ Ы 2 Д بتا Ø ن ഗ ĸ Д G >-ᅱ 臼 Н ¥ × × O I L U × > M G Ü R V A I G 되 Н Ŋ G [고] Ŋ 더 > YTQLQYI Ø ഥ 2 K 'n
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H A ¥ Д H · K. ĸ > K ΑН Q ט ပ ¥ Д Ω **>**-ග Σ K × а > H ¥ Ø G <u>ෆ</u> ഥ

FIG.4B

540 009 099 217 720 137 197 157 177 237 AGCTGAGCAATGACCATATCTGCTACTTCCTCTACCAGATCCTGCGGGCCTCAAGTACA 480 ATGTCTACATTGTGCAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGC 420 O 口 댈 TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA I TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG Η E ACACCGGCTTCCTGACGGAGTATGTGGCTACGCGCTTGGTACCGGGCCCCAGAGATCATGC CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGATTGCCGATCCTGAGCATGACC Ø × Σ Ø ۲ × ഗ Ή П Z Н Н × Н ഥ Ы H H П Ŋ Д Ч U K ᆸ 2 Ω K Ġ Н K Z 2 > **--**-1 LY က Η S × Ø ĸ വ 3 Z Ω × A J R 24 H H П E Ω Ω Ŋ 回 ۲٦ K Н ĸ > × Σ ᄺ S 口 **>** ပ Ω Ή × Ω Ц ပ Н 团 H > Ø 工 Н H \succ > Z × Ω Ц G Ø П × Z ī Ω Ŋ လ G S ပ 口 H Z

FIG.4C

TTCTGGGCATCCTGGGCTCCCCATCCCAGGAGGACCTGAATTGTATCATCAACATGAAGG 840 297 257 A 277 CCCGAAACTACCTACAGTCTCTGCCCTCCAAGACCAAGGTGGCTTGGGCCAAGCTTTTCC 900 CCAAGTCAGACTCCAAAGCCCTTGACCTGCTGGACCGGATGTTAACCTTTAACCCCAATA 960 AGATGCTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA 780 H Z Д × ᄺ Ή а П X L Σ Z Ω Z Z 7 A Ω Ø ഥ Н 3 L D Ļ Н H ပ K V A ᆸ 团 Σ Z **>**-ᄶ Ц H E Ω T D T T D لحا × 又 凹 G L P S O, 됴 Ы ഗ بعآ Д Y L Q S S K A ഗ Д Ŋ 24 П Z H Ω ഗ G S Z Σ Н × 2

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FIG.4D

AGGAGCGGCTGAAGGAGCTCATCTTCCAGGAGACAGCACGCTTCCAGCCCGGAGTGCTGG 1080

F.Q P G V L E 357 ద E T A E L I F Q R L K

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AGGCCCCCTAGCCCAGACATCTCTGCACCTGGGGCCTGGAACAGAACTGGCAAAG 1140

A P

359

FIG.4E

1440 1380 1500 GTGAGCAGAAGTGGAGCTGGGGGGGGGTGGAGAGCCCGGCGCCCCTGCCACCTCCCTGACC 1740 GGCGCTGAGTAGGGACTCAGGGCCATGCCTGCCCCCTCATCTATTCAAACCCCACCCT 1560 AGTITCCCTGAAGGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGAGCCAGGCCG 1620 CGCCAGACTGTTAGAAATGGACACTGTGCCCAGCCCGGACCTTGGCAGCCCAGGCCGGG 1260 AGGCCTTCTCCTCCCCACCGCCCTCCCCACGGGGCCTCGGGAGCTCAGGTGGCCCCAGT TCAATCTCCCGCTGCTGCTGCCCCTTACCTTCCCCAGCGTCCCAGTCTCTGGCAGT TCTGGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCAGAGGTGGAGGGTGGGG CGTCTAATATAAATATAGAGATGTGTCTATGGCTG 09

SMAPK3V2

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CCGAGGGGGTCGGCGCGGGGGGGGGGGGGGGAGATGGTGAAGGGGCCAGCCGTTCG CCGAGGGGGTCGGGGGGTCCCGGGGGGGGGGGGAGATGGTGAAGGGGCCAGCCGTTCG SMAPK3V1 CCGAGGGGTCGGCCCGGGGGTCCCGGGGGGGGGGGGGAGATGGTGAAGGGGGCAGCCGTTCG CCGAGGGGGTCGGGGGGTCCCGGGGGGGGGGGGGAGTGGTGAAGGGGGCAGCCGTTCG SMAPK3V4 SMAPK3V2 SMAPK3V3

FIG.5B

121

180

SMAPK3V4 ACGTGGGCCCGCGCTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGGCATGGTCA SMAPK3V1 ACGTGGGCCCGCGTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGCATGGTCA SMAPK3V2 ACGTGGGCCCGCGCTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGGCATGGTCA ACGTGGGCCCGCGCTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGGCATGGTCA SMAPK3V3 ACGTGGGCCCGCGCTACACGCAGTTGCAGTACATCGGCGAGGGCGCGTACGGCATGGTCA SMAPK3

240

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SMAPK3V3 GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCCTTCG SMAPK3V1 GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCTTCG GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCTTCG GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCCTTCG SMAPK3V4 GCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCCTTCG SMAPK3V2

FIG.5C

241

AACATCAGACCTACTGCCAGGGCACGCTCCGGGAGATCCAGATCCTGCTGCGCTTCCGCC SMAPK3V3 AACATCAGACCTACTGCCAGCGCACGCTCCGGGAGATCCAGATCCTGCTGCGCTTCCGCC SMAPK3V4 AACATCAGACCTACTGCCAGCGCACGCTCCGGGAGATCCAGATCCTGCTGCGCTTCCGCC SMAPK3V1 AACATCAGACCTACTGCCAGCGCACGCTCCGGGAGATCCTGCTGCTTCCGCC SMAPK3V2 AACATCAGACCTACTGCCAGCGCACGCTCCGGGAGATCCAGATCCTGCTGCGCCTTCCGCC SMAPK3

360 301

SMAPK3V1 ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG SMAPK3V2 ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG SMAPK3V3 ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG SMAPK3V4 ATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGAAGCCATGAGAG

FIG.5D

361

420

SMAPK3V3 ATGTCTACATTGTGCAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGC SMAPK3V4 ATGTCTACATTGTGCAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGC SMAPK3V1 ATGTCTACATTGTGCAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGC SMAPK3V2 ATGTCTACATTGTGCAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGC **ATGTCTACATTGTGCAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGC** SMAPK3

480

421

AGCTGAGCAATGACCATATCTGCTACTTCCTACCAGATCCTGCGGGGCCTCAAGTACA AGCTGAGCAATGACCATATCTGCTACTTCCTCTACCAGATCCTGCGGGGCCTCAAGTACA AGCTGAGCAATGACCATATCTGCTACTTCCTCTACCAGATCCTGCGGGGCCTCAAGTACA SMAPK3V4 AGCTGAGCAATGACCATATCTGCTACTTCCTCTACCAGATCCTGCGGGCCTCAAGTACA SMAPK3V1 AGCTGAGCAATGACCATATCTGCTACTTCCTCTACCAGATCCTGCGGGGCCTCAAGTACA SMAPK3V3 SMAPK3V2 **SMAPK3**

481

540

TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA SMAPK3V4 TCCACTCCGCCAACGTGCTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCA SMAPK3V1 SMAPK3V2 SMAPK3V3 SMAPK3

541

CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGATTGCCGATCCTGAGCATGACC SMAPK3V1 CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGATTGCCGATCCTGAGCATGACC CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGATTGCCGATCCTGAGCATGACC SMAPK3V3 CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGATTGCCGATCCTGAGCATGACC SMAPK3V4 CCTGCGACCTTAAGATTTGTGATTTCGGCCTGGCCCGGGATTGCCGATCCTGAGCATGACC SMAPK3V2 SMAPK3

FIG.5F

601

099

SMAPK3V1 ACACCGGCTTCCTGACGGAGTATGTGGCTACGCGCTGGTACCGGGCCCCAGAGATCATGC SMAPK3V2 ACACCGGCTTCCTGACGGAGTATGTGGCTACGCGCTGGTACCGGGCCCCAGAGATCATGC ACACCGGCTTCCTGACGGAGTATGTGGCTACGCGCTGGTACCGGGCCCCCAGAGATCATGC SMAPK3V3 ACACCGGCTTCCTGACGGAGTATGTGGCTACGCGCTGGTACCGGGCCCCCAGAGATCATGC SMAPK3V4 ACACCGGCTTCCTGACGGAGTATGTGGCTACGCGGTACCGGGGCCCCAGAGATCATGC SMAPK3

720

661

TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG TGAACTCCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTG SMAPK3V1 SMAPK3V4 SMAPK3V2 SMAPK3V3 SMAPK3

FIG.5G

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SMAPK3V4 AGATGCTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA SMAPK3V1 AGATGCTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA AGATGCTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA AGATGCTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA SMAPK3V3 AGATGCTCTCTAACCGGCCCATCTTCCCTGGCAAGCACTACCTGGATCAGCTCAACCACA SMAPK3V2 SMAPK3

840

781

TTCTGGGCATCCTGGGCTCCCCATCCCAGGAGGACCTGAATTGTATCATCAACATGAAGG TTCTGGGCATCCTGGGCTCCCCATCCCAGGAGGACCTGAATTGTATCATCAACATGAAGG TTCTGGGCATCCTGGGCTCCCCATCCCAGGAGGACCTGAATTGTATCATCAACATGAAGG TTCTGGGCATCCTGGGCTCCCCATCCCAGGACCTGAATTGTATCATCAACATGAAGG TTCTGG----SMAPK3V4 SMAPK3V3 SMAPK3V1 SMAPK3V2 SMAPK3

FIG.5H

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SMAPK3V1	
SMAPK3V2	SMAPK3V2 CCCGAAACTACCTACAGTCTCTGCCCTCCAAGACCAAGGTGGCTTGGGCCAAGCTTTCC
SMAPK3	CCCGAAACTACCTACAGTCTCTGCCCTCCAAGACCAAGGTGGCTTGGGCCAAGCTTTTCC
SMAPK3V3	SMAPK3V3 CCCGAAACTACCTACAGTCTCTGCCCTCCAAGACCAAGGTGGCTTGGGCCAAGCTTTTCC
SMAPK3V4	SMAPK3V4 CCCGAAACTACCTACAGTCTCTGCCCTCCAAGACCAAGGTGGCTTGGGCCAAGCTTTCC

960 ----CCCTTGACCTGCTGGACCGGATGTTAACCTTTAACCCCAATA SMAPK3V2 CCAAGTCAGACTCCAAAGCCCTTGACCTGCTGGACCGGATGTTAACCTTTTAACCCCAATA CCAAGTCAGACTCCAAAGCCCTTGACCTGCTGGACCGGATGTTAACCTTTAACCCCAATA SMAPK3V3 CCAAGTCAGACTCCAAAGCCCTTGACCTGCTGGACCGGATGTTAACCTTTAACCCCAATA SMAPK3V4 CCAAGTCAGACTCCAAAGCCCTTGACCTGCTGGACCGGATGTTAACCTTTTAACCCCAATA 901 SMAPK3V1 SMAPK3

FIG 5

	961 . 1020
SMAPK3V1	SMAPK3V1 AACGGATCACAGTGGAGGAAGCGCTGGCTCACCCCTACCTGGAGCAGTACTATGACCCGA
3MAPK3V2	SMAPK3V2 AACGGATCACAGTGG
SMAPK3	AACGGATCACAGTGGAAGCGCTGGCTCACCCCTACCTGGAGCAGTACTATGACCCGA
3MAPK3V3	SMAPK3V3 AACGGATCACAGTGGAGGAGGCGCTGGCTCACCCCTACCTGGAGCAGTACTATGACCCGA
SMAPK3V4	SMAPK3V4 AACGGATCACAGTGG

1080 ----CCGAGGAGCCCTTCACCTTCGCCATGGAGCTGGATGACCTA SMAPK3V4 -----1021 SMAPK3V2 SMAPK3

FIG.5J

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AGGAGCGGCTGAAGGAGCTCATCTTCCAGGAGACAGCACGCTTCCAGCCCGGAGTGCTGG SMAPK3V3 AGGAGCGGCTGAAGGAGCTCATCTTCCAGGAGACAGCACGCTTCCAGCCCGGAGTGCTGG SMAPK3V4 AGGAGCGGCTGAAGGAGCTCATCTTCCAGGAGACAGCACGCTTCCAGCCCGGAGTGCTGG SMAPK3V1 AGGAGCGGCTGAAGGAGCTCATCTTCCAGGAGACAGCACGCTTCCAGCCCGGAGTGCTGG SMAPK3V2 AGGAGCGGCTGAAGGAGCTCATCTTCCAGGAGACAGCACGCTTCCAGGCCCGGAGTGCTGG SMAPK3

SMAPK3V3 AGGCCCCCTAGCCCAGACAGACATCTCTGCACCCTGGGCCTGGAACAGAACTGGCAAAG SMAPK3V4 AGGCCCCCTAGCCCAGACAGACATCTCTGCACCCTGGGGCCTGGAACAGAACTGGCAAAG AGGCCCCCTAGCCCAGACAGACATCTCTGCACCCTGGGGCCTGGA----SMAPK3V2 AGGCCCCCTAGCCCAGACAGACATCTCTGCACCCTGGGGCCTGGA----SMAPK3V1 AGGCCCCCTAGCCCAGACAGACATCTCTGCACCCTGGGGCCTGGA-

FIG.5

	1201
SMAPK3V1	CCTGCCTGCCTGCCTGCCTGCCTGCCTGCCTGCC
SMAPK3V2	CGTGCCTGCCTGCCTGCCTGCCTGCCTGCCTGCCT
SMAPK3	CINCOLOGICAL CONTROL C
SMAPK3V3	SMAPK3V3 AGGCAAGAGGTCACTGAGGGCCTCTGTCACCCAGGACCTGCCTG
SMAPK3V4	SMAPK3V4 AGGCAAGAGGTCACTGAGGGCCTCTGTCACCCAGGACCTGCCTCCTGCCTG

SMAPK3V3 CGCCAGACTGTTAGAAAATGGACACTGTGCCCAGCCCGGACCTTGGCAGCCCAGGCCGGG CGCCAGACTGTTAGAAAATGGACACTGTGCCCAGCCCGGACCTTGGCAGCCCAGGCCGGG SMAPK3V4 CGCCAGACTGTTAGAAAATGGACACTGTGCCCAGCCCGGACCTTGGCAGCCCAGGCCGGG SMAPK3V1 CGCCAGACTGTTAGAAAATGGACACTGTGCCCAGCCCGGACCTTGGCAGCCCAGGCCGGG SMAPK3V2 CGCCAGACTGTTAGAAAATGGACACTGTGCCCAGCCCGGACCTTGGCAGCCCAGGCCGGG SMAPK3

FIG.5L

1321

SMAPK3V2 GTGGAGCATGGGCCTGGCCACCTCTCTCTTTGCTGAGGCCTCCAGCTTCAGGCCAGGCCA GTGGAGCATGGGCCTGGCCACCTCTCTCTTTGCTGAGGCCTCCAGCTTCAGGCCAGGCCA **SMAPK3**

1440

SMAPK3V3 AGGCCTTCTCCTCCCACCCGCCCTCCCCACGGGGCCTCGGGAGCTCAGGTGGCCCCAGT AGGCCTTCTCCTCCCCACCCGCCCTCCCCACGGGGCCTCGGGAGCTCAGGTGGCCCCAGT SMAPK3V4 AGGCCTTCTCCTCCCCACCCGCCCTCCCCACGGGGCCTCGGGAGCTCAGGTGGCCCCAGT SMAPK3V1 AGGCCTTCTCCTCCCCACCCGCCCTCCCCACGGGGCCTCGGGAGCTCAGGTGGCCCCAGT SMAPK3V2 AGGCCTTCTCCTCCCCACCCGCCCTCCCCACGGGGCCTCGGGAGCTCAGGTGGCCCCAGT

FIG.5M

1441

1500

SMAPK3V1 TCAATCTCCCGCTGCTGCTGCTGCCCCTTACCTTCCCCAGCGTCCCAGTCTTTGGCAGT TCAATCTCCCGCTGCTGCTGCGCCCTTACCTTCCCCAGCGTCCCAGTCTCTGGCAGT TCAATCTCCCGCTGCTGCTGCGCCCTTACCTTCCCCAGCGTCCCAGTCTTGGCAGT SMAPK3V3 TCAATCTCCCGCTGCTGCTGCGCCCTTACCTTCCCCAGCGTCCCAGTCTCTGGCAGT SMAPK3V4 TCAATCTCCCGCTGCTGCTGCCCCTTACCTTCCCCAGCGTCCCAGTCTTGGCAGT SMAPK3V2 SMAPK3

TCTGGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCAGAGGGTGGGGG TCTGGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCAGAGGTGGAGGTGGGG SMAPK3V4 TCTGGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCAGAGGTGGAGGGTGGGG SMAPK3V2 TCTGGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCCAGAGGTGGAGGGTGGGG SMAPK3V1 TCTGGAATGGAAGGGTTCTGGCTGCCCCAACCTGCTGAAGGGCAGAGGTGGAGGGTGGGG SMAPK3V3 SMAPK3

FIG.5N

1561

1620

SMAPK3V1 GGCGCTGAGTAGGGACTCAGGGCCATGCCTGCCCCCCTCATCTCATTCAAACCCCACCCT SMAPK3V2 GGCGCTGAGTAGGGACTCAGGGCCATGCCTGCCCCCCTCATCTCATTCAAACCCCACCCT GGCGCTGAGTAGGGACTCAGGGCCCATGCCTGCCCCCCTCATCTAAACCCCACCTT SMAPK3V3 GGCGCTGAGTAGGGACTCAGGGCCATGCCTGCCCCCCTCATCTCATTCAAACCCCACCT SMAPK3V4 GGCGCTGAGTAGGGACTCAGGGCCATGCCTGCCCCCCTCATCTCAAACCCCACCCT

SMAPK3V1 AGTTTCCCTGAAGGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGAGCCAGGCCG AGTITCCCTGAAGGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGAGCCAGGCCG SMAPK3V2

AGTITCCCTGAAGGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGAGCCAGGCCG SMAPK3V3 AGTTTCCCTGAAGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGAGCCAGGCCG SMAPK3V4 AGTTTCCCTGAAGGAACATTCCTTAGTCTCAAGGGCTAGCATCCCTGAGGAGCCAGGCCG

FIG.50

1681

1740

GGCCGAATCCCCTGTCAAAGCTGTCACTTCGCGTGCCCTCGCTGCTTCTGTGTG SMAPK3V3 GGCCGAATCCCCTCCCTGTCAAAGCTGTCACTTCGCGTGCCTCGCTGCTTCTGTGTG SMAPK3V4 GGCCGAATCCCCTCTGTCAAAGCTGTCACTTCGCGTGCCCTCGCTGCTTCTGTGTG SMAPK3V1 GGCCGAATCCCCTCTCTCAAAGCTGTCACTTCGCGTGCCTCGCTGCTTCTGTGTG

GTGAGCAGAAGTGGAGCTGGGGGGGGTGGAGAGCCCGGCGCCCCTGCCACCTCCCTGACC SMAPK3V3 GTGAGCAGAAGTGGAGCTGGGGGGCGTGGAGAGCCCGGCGCCCCTGCCACCTCCCTGACC SMAPK3V4 GTGAGCAGAAGTGGAGCTGGGGGGGGGTGGAGAGCCCGGCCCCCTGCCTCCCTGACC SMAPK3V1 GTGAGCAGAAGTGGAGCTGGGGGGCGTGGAGAGCCCGGCGCCCCTGCCTCCCTGACC SMAPK3V2 GTGAGCAGAAGTGGAGCTGGGGGGGGTGGAGAGCCCGGCCCCCTGCCTCCTTGACC

FIG.5P

177	SMAPK3V4 CGTCTAATATATATATAGAGATGTGTCTATGGCTG	SMAPK3V4
183	SMAPK3V3 CGTCTAATATATAAATATAGAGATGTGTCTATGGCTG	SMAPK3V3
178	CGTCTAATATAAATATAGAGATGTGTCTATGGCTG	SMAPK3
172	SMAPK3V2 CGTCTAATATATAAATATAGAGATGTGTCTATGGCTG	SMAPK3V2
165	SMAPK3V1 CGTCTAATATATAATATAGAGATGTGTCTATGGCTG	SMAPK3V1

9

SMAPK3V1 MAAAAAQGGGGGEPRRTEGVGPGVPGEVEMVKGQPFDVGPRYTQLQYIGEGAYGMVSSAY MAAAAAQGGGGGEPRRTEGVGPGVPGEVEMVKGQPFDVGPRYTQLQYIGEGAYGMVSSAY SMAPK3V3 MAAAAAQGGGGGFPRRTEGVGPGVPGEVEMVKGQPFDVGPRYTQLQYIGEGAYGMVSSAY SMAPK3V4 MAAAAAQGGGGGEPRRTEGVGPGVPGEVEMVKGQPFDVGPRYTQLQYIGEGAYGMVSSAY MAAAAAQGGGGGEPRRTEGVGPGVPGEVEMVKGQPFDVGPRYTQLQYIGEGAYGMVSSAY SMAPK3V2 SMAPK3

DHVRKTRVAIKKISPFEHQTYCQRTLREIQILLRFRHENVIGIRDILRASTLEAMRDVYI DHVRKTRVAIKKISPFEHQTYCQRTLREIQILLRFRHENVIGIRDILRASTLEAMRDVYI SMAPK3V4 DHVRKTRVAIKKISPFEHQTYCQRTLREIQILLRFRHENVIGIRDILRASTLEAMRDVYI SMAPK3V1 DHVRKTRVAIKKISPFEHQTYCQRTLREIQILLRFRHENVIGIRDILRASTLEAMRDVYI DHVRKTRVAIKKISPFEHQTYCQRTLREIQILLRFRHENVIGIRDILRASTLEAMRDVYI 61 SMAPK3V3 SMAPK3V2 SMAPK3

FIG.6B

180 121

SMAPK3V2 VQDLMETDLYKLLKSQQLSNDHICYFLYQILRGLKYIHSANVLHRDLKPSNLLINTTCDL SMAPK3V4 VQDLMETDLYKLLKSQQLSNDHICYFLYQILRGLKYIHSANVLHRDLKPSNLLINTTCDL SMAPK3V1 VQDLMETDLYKLLKSQQLSNDHICYFLYQILRGLKYIHSANVLHRDLKPSNLLINTTCDL VQDLMETDLYKLLKSQQLSNDHICYFLYQILRGLKYIHSANVLHRDLKPSNLLINTTCDL SMAPK3V3 VQDLMETDLYKLLKSQQLSNDHICYFLYQILRGLKYIHSANVLHRDLKPSNLLINTTCDL SMAPK3

SMAPK3V1 KICDFGLARIADPEHDHTGFLTEYVATRWYRAPEIMLNSKGYTKSIDIWSVGCILAEMLS KICDFGLARIADPEHDHTGFLTEYVATRWYRAPEIMLNSKGYTKSIDIWSVGCILAEMLS KICDFGLARIADPEHDHTGFLTEYVATRWYRAPEIMLNSKGYTKSIDIWSVGCILAEMLS SMAPK3V3 KICDFGLARIADPEHDHTGFLTEYVATRWYRAPEIMLNSKGYTKSIDIWSVGCILAEMLS SMAPK3V4 KICDFGLARIADPEHDHTGFLTEYVATRWYRAPEIMLNSKGYTKSIDIWSVGCILAEMLS SMAPK3V2 SMAPK3

360

301

FIG.6C

 * $^{-}$ q^{-1}

	241
SMAPK3V1	SMAPK3V1 NRPIFPGKHYLDQLNHIL
SMAPK3V2	SMAPK3V2 NRPIFPGKHYLDQLNHILGILGSPSQEDLNCIINMKARNYLQSLPSKTKVAWAKLFPKS
SMAPK3	NRPIFPGKHYLDQLNHILGILGSPSQEDLNCIINMKARNYLQSLPSKTKVAWAKLFPKS
SMAPK3V3	SMAPK3V3 NRPIFPGKHYLDQLNHILGILGSPSQEDLNCIINMKARNYLQSLPSKTKVAWAKLFPKS
SMAPK3V4	SMAPK3V4 NRPIFPGKHYLDOLNHILGILGSPSOEDLNCIINMKARNYTOSLPSKTKVAWAKLFPKS

SKALDLLDRMLTFNPNKRITV---------AEEPFTFAMELDDLPKERL SKALDLLDRMLTFNPNKRITVEEALAHPYLEQYYDPTDEPVAEEPFTFAMELDDLPKERL SKALDLLDRMLTFNPNKRITVEEALAHPYLEQYYDPTDEPVAEEPFTFAMELDDLPKERL SMAPK3V1 --ALDLLDRMLTFNPNKRITVEEALAHPYLEQYYDPTDEPVAEEPFTFAMELDDLPKERL -----AEEPFTFAMELDDLPKERL SMAPK3V4 SKALDLLDRMLTFNPNKRITV----SMAPK3V3 SMAPK3V2 SMAPK3

FIG. 6T

361

SMAPK3V1	SMAPK3V1 KELIFQETARFQPGVLEAP	33
SMAPK3V2	SMAPK3V2 KELIFQETARFQPGVLEAP	35
SMAPK3	KELIFQETARFQPGVLEAP	37
SMAPK3V3	SMAPK3V3 KELIFQETARFQPGVLEAP	37
SMAPK3V4	SMAPK3V4 KELIFQETARFQPGVLEAP	35